Device Puts More Cotton in the Bale

Normally, about 20 pounds of material is removed from every 500-pound bale of cotton during a process called lint cleaning. Unfortunately, more than 10 pounds of good fiber is lost along with the leaf particles, sticks, stems, seed coat fragments, grass, and bark removed by lint cleaners. Now a new lint cleaner has been developed that prevents most of the good fiber from being ejected along with the foreign matter, increasing the weight of a single bale of cotton after ginning by about 10 pounds.

The cleaning efficiency of this new device is equal to that of a standard lint cleaner, and it performed well in field tests of more than 5,000 bales in a commercial gin during the entire 2002 gin season. Its adoption could help growers increase the value of their cotton and also find use in separating fibers from other crops, such as kenaf and flax. A patent for the new lint cleaner has been filed, and researchers are preparing to demonstrate the device in action to potential licensees in the near future. *W. Stanley Anthony, USDA-ARS Cotton Ginning Research Unit, Stoneville, Mississippi; phone (662) 686-3094, e-mail santhony @ars.usda.gov.*

Beyond Pickles—Medicine From Watermelon Rind?

Scientists interested in determining the relative amounts of an important amino acid called citrulline that's present in different watermelon varieties were recently surprised to find it concentrated in the melons' rind. Citrulline plays an important role in the body's urea cycle, which removes nitrogen from the blood and helps convert it to urea that is excreted in the urine. Disorders in the urea cycle can lead to a lethal buildup of proteins, such as ammonia, in the bloodstream. That's where citrulline helps create arginine—an amino acid involved in the urea cycle—which some people produce too little of.

Arginine or citrulline is often recommended to address those, and other, disorders. Arginine boosts nitric oxide, which relaxes blood vessels and thus may help treat angina and other cardiovascular problems. It may also play a role in blood-circulation problems associated with sickle-cell anemia and has been credited with boosting muscle growth, stimulating the immune system, improving wound healing, curing impotence, and more.

Researchers' next step will be to see whether the citrulline-arginine relationship can be exploited to develop rind-based extract or dietary-supplement products that address arginine- or sickle-cell deficiencies. *Agnes M. Rimando, USDA-ARS Natural Products Utilization Research Unit, Oxford, Mississippi; phone (662) 915-1037, e-mail arimando @ars.usda.gov. Penelope Perkins-Veazie, USDA-ARS South Central Agricultural Research Laboratory, Lane, Oklahoma; phone (580) 889-7395, e-mail pperkins-usda@lane-ag.org.*

Veggie Oil-Based Hair Care Products

Most of today's hair gels benefit from the holding power of synthetic polymers. When the gels are applied, the main ingredient—water—evaporates, leaving a thin film around the hair strands, helping to keep them in place. Research has shown that it's possible to get the same kind of hold with lipid compounds derived from soapstock, an underused byproduct of oilseed processing. These lipid compounds are usually hard to recover because they degenerate through oxidation and are wasted. Now there's a way to reclaim the valuable compounds and treat them so that they maintain their useful properties.

Gels have been created from safflower and soybean soapstocks. Lab tests show them to work well on a variety of hair types. They would be relatively inexpensive to produce, since soapstock costs only a fraction of the price of synthetic polymers. Efforts are under way to find a manufacturer interested in collaborating on this research. *Myong (Sam) Kuk, USDA-ARS Commodity Utilization Research Unit, New Orleans, Louisiana; phone (504) 286-4552, e-mail mskuk@srrc.ars.usda.gov.*

Vitamin K Helps Build Women's Bones

Data from the Framingham Heart Study 1996-2000 suggest that low vitamin K intake may contribute to lower bone mineral density (BMD) in women. Researchers measured the BMD of 2,591 men and women aged 29 to 86 and assessed dietary and supplemental vitamin K intake with a food-frequency questionnaire.

Vitamin K helps certain proteins bind calcium, which is required for proper bone mineralization. Women with the lowest vitamin K intakes had significantly lower mean BMD at the femoral neck and spine than did those with the highest intakes.

Recommended levels of 90 micrograms per day for women and 120 micrograms for men can be met by consuming adequate amounts of leafy green vegetables and vegetable-derived oils and spreads.

To locate good sources of vitamin K via the Internet, go to www.nal.usda.gov/fnic/foodcomp. There you will find a link to USDA's Standard Reference database, with instructions for searching by specific food. *Sarah L. Booth, Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, Boston, Massachusetts; phone (617) 556-3231, e-mail sarah.booth@tufts.edu.*